

Soil Sampling

Taking Bulk Density Samples

If you are using a Soil Pit or other Exposed Soil Profile (road cut)

1. For each horizon in your soil profile, push a can with a known volume into the side of the horizon. If necessary, wet the soil first so that the can will go in easily. Stop when you can see some of the soil poking through the small hole in the bottom of the can.
2. If it is still difficult to push the can into the soil, you may need to place a piece of wood over the can and hit the wood with the hammer to spread the force of the hammer blow to all edges of the can at once and to minimize denting the can.



Note: Some denting is allowed in the procedure, but if the can dents too badly, consider taking a bulk density sample from the surface of the soil near your sampling site

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3. Using a trowel or shovel, remove the can and the soil surrounding it. Trim the soil from around the can until it is flat against the edges of the can so that the volume of the soil is the same as the volume of the can.
4. Cover the labeled can with the lid or other cover and return it to the classroom.
5. Repeat this procedure so that you have three bulk density samples for each horizon.
6. Weigh each sample in its can and record this moist weight on the Bulk Density Data Work Sheet.
7. Remove the covers. Place the samples in the soil drying oven until the soils are dry.

Soil Sampling

Taking Bulk Density Samples

If you are using the Surface Sample Technique

1. Choose three locations close to where you performed your soil characterization protocol and remove vegetation and other material from the soil surface.



2. At each location, push a can with a known volume into the surface of the soil. If necessary, wet the soil so that the can will go in easily. Stop when you can see some soil poking through the small hole in the bottom of the can.



3. If it is difficult to push the can into the soil, place a piece of wood over the can and hit the wood with the hammer to spread the force of the hammer blow to all edges of the can at once.

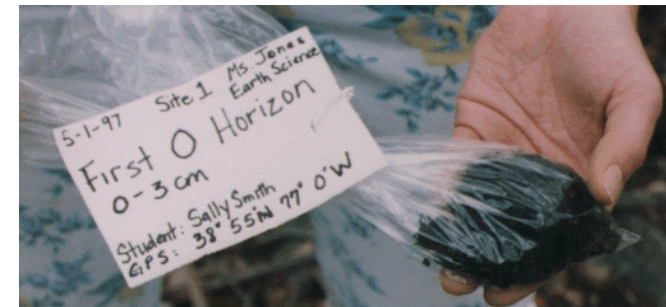


Soil Sampling

If You Are Not Measuring Bulk Density

If you are using a Soil Pit or other Exposed Soil Profile (road cut)

- 1. Dig a large sample from each soil horizon.**
Avoid the area of the soil face that was tested for carbonates and avoid touching the soil samples so that your pH measurements will not be contaminated.
- 2. Place each sample in a bag or other soil container.**
- 3. Label each bag with the site name, horizon name, and top and bottom depths.**
- 4. Bring these samples in from the field.**
- 5. Spread the samples on separate plastic plates or sheets of newspaper to dry in the air.**

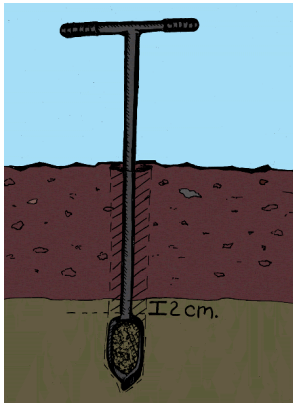


Soil Sampling

If you are using the Auger Technique

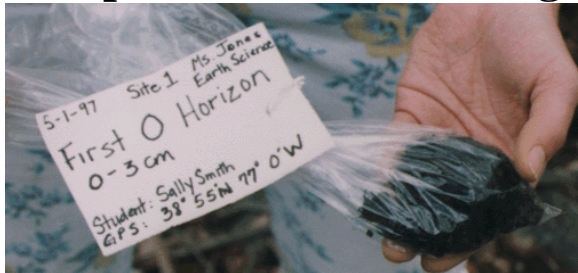
1. Auger to a depth of 1 or 2 cm past the top of the horizon to be sampled.

If the horizon is thinner than the length of the auger head, partially turn the auger so that the whole sample will be from one horizon.*



* Use the depths from the first soil profile you withdrew with the auger as a guide.

2. Place the sample in a labeled bag or other soil container. Avoid touching the sample and contaminating it.



3. Repeat steps one and two for each horizon of three profiles.



4. Bring these samples in from the field, and spread them on separate plastic plates or sheets of newspaper to dry in the air.



Soil Sampling

If You Are Not Measuring Bulk Density

If you are using the Surface Sample Method

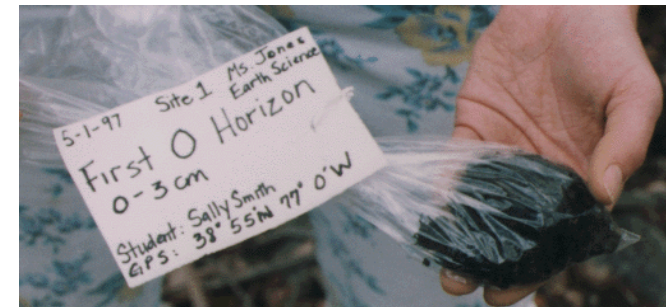
1. Dig three large samples from the soil surface.

Avoid the area of the soil face that was tested for carbonates and avoid touching the soil samples so that your pH measurements will not be contaminated.



2. Place each sample in a bag or other soil container.

3. Label each bag with the site name and top and bottom depths.



4. Bring these samples in from the field.

5. Spread the samples on separate plastic plates or sheets of newspaper to dry in the air.



Field Analysis Conclusion

When You Are Finished Sampling:

1. Photograph the face of the pit, or the soil profile you have removed and placed on the ground with the auger.
 - Place a tape measure along the profile (in the pit or next to the auger sample profile you created) so that 0 cm is at the top of the profile to record horizon depths for the picture.
 - Take another photograph of the landscape outside the pit or around the auger hole.
 - Send these photographs to: the GLOBE Student Data Archive at the address given in the Teacher's Guide, or if they were taken with a digital camera, submit them to the GLOBE Student Data Archive electronically.

